



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Kathleen Clarke
Executive Director

Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210

PO Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

August 29, 2001

Johnny Pappas, Sr. Environmental Engineer
Plateau Mining Corporation
847 Northwest Highway 191
Helper, Utah 84526

Re: Findings for Revision to Reclamation Plan, Plateau Mining Corporation, Willow Creek Mine, C/007/038-AM01B, Outstanding File

Dear Mr. Pappas:

The above-referenced amendment has been reviewed and there are deficiencies that must be adequately addressed prior to approval. A copy of our Technical Analysis is enclosed for your information. In order for us to continue processing your application, please respond to these deficiencies by October 15, 2001.

If you have any questions, please call me at (801) 538-5268 or Pete Hess at (435) 613-5622.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pamela Grubaugh-Littig', written over a horizontal line.

Pamela Grubaugh-Littig
Permit Supervisor

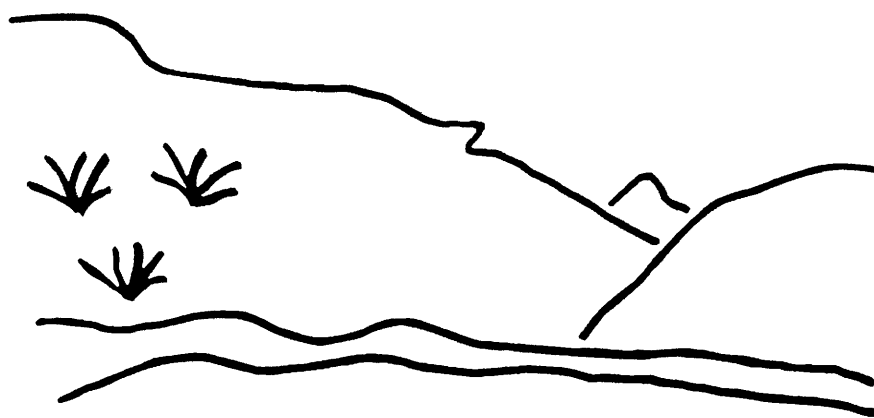
PHH/sd

Enclosure

cc: Price Field Office

O:\007038.WIL\FINAL\DEFAM01B.DOC

State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Willow Creek Mine
Reclamation Plan Revision
C/007/038-AM01B
Technical Analysis
August 22, 2001

TABLE OF CONTENTS

INTRODUCTION.....	1
SUMMARY OF DEFICIENCIES.....	3
ENVIRONMENTAL RESOURCE INFORMATION	5
VEGETATION RESOURCE INFORMATION	5
FISH AND WILDLIFE RESOURCE INFORMATION	6
SOILS RESOURCE INFORMATION.....	6
MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION	7
Vegetation Reference Area Maps	7
Wildlife Maps	8
OPERATION PLAN	9
FISH AND WILDLIFE INFORMATION	9
Protection and Enhancement Plan	10
Endangered and Threatened Species	10
Bald and Golden Eagles.....	10
Wetlands and Habitats of Unusually High Value for Fish and Wildlife	10
VEGETATION	11
MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS.....	11
Monitoring and Sample Location Maps	12
RECLAMATION PLAN.....	13
POSTMINING LAND USES	13
PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES...	14
BACKFILLING AND GRADING.....	15
General.....	16
TOPSOIL AND SUBSOIL.....	17
Redistribution.....	18
HYDROLOGIC INFORMATION	19
General.....	19
Ground-Water Monitoring	20
Surface-Water Monitoring	20
Diversions	20
Stream Buffer Zones	22
Sediment Control Measures	22
Sedimentation Ponds.....	23
CONTEMPORANEOUS RECLAMATION.....	25
General.....	25
REVEGETATION	26
General Requirements.....	27
Timing.....	28
Mulching and Other Soil Stabilizing Practices	28
Standards for Success	28
STABILIZATION OF SURFACE AREAS	29
MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS	29
Reclamation Monitoring and Sampling Location Maps.....	30
Reclamation Treatments Maps	31

TABLE OF CONTENTS

BONDING AND INSURANCE REQUIREMENTS.....	31
Determination of Bond Amount	31
RULES INDEX	35

INTRODUCTION

TECHNICAL ANALYSIS

INTRODUCTION

The permittee submitted a proposal to revise the reclamation plan for the Willow Creek Mine site in February of 2001. The proposal included changes relative to **Section 5.2**, Soil Replacement Plans, **Section 5.3**, Habitat Restoration Plans, **Section 5.4**, Reclamation of the Mining Disturbance, **Section 5.5**, Hydrologic Resource Restoration, **Exhibit 13**, Drainage and Sediment Control, and **Exhibit 17**, the Reclamation Bond Estimate.

At the present time, the Willow Creek Mine is in temporary cessation status. The permittee is desirous to revise the reclamation plan and reduce the bond amount in order to make the potential for a sale of the site more appealing. The following technical analysis / deficiency document is a review of the proposed changes.

Page 2
C/007/038-AM01B
August 22, 2001

INTRODUCTION

SUMMARY OF OUTSTANDING DEFICIENCIES

SUMMARY OF DEFICIENCIES

The Technical Analysis of the proposed permit changes cannot be completed at this time. Additional information is requested of the permittee to address deficiencies in the proposal. A summary of deficiencies is provided below. Additional comments and concerns may also be found within the analysis and findings made in this Draft Technical Analysis. Upon finalization of this review, any deficiencies will be evaluated for compliance with the regulatory requirements. Such deficiencies may be conditioned to the requirements of the permit issued by the Division, result in denial of the proposed permit changes, or may result in other executive or enforcement action as deemed necessary by the Division at that time to achieve compliance with the Utah Coal Regulatory Program.

Accordingly, the permittee must address those deficiencies as found within this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

Regulations

- R645-301-121.200**, 1) Correct the 7 typographical mistakes and inconsistencies detailed above, and 2) Show the drainage and sediment control features which will be retained during the reclamation period on Maps 21A thorough 21E. 25
- R645-301-320**, The references in Volumes 5, and 9 need to be corrected. A clear and concise nomenclature that differentiates the different types of “*exhibits*” needs to be incorporated into the MRP. 7
- R645-301-322, -301-333, -301-342, -301-358**, an up-to-date evaluation using current TES information should be provided. 13
- R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731**, Exhibit 9-2 is a vegetation map for the Castle Gate mine and should be placed accordingly in that MRP or supportive documentation should be provided as to why it is included in the Willow Creek MRP. There is also an additional area revegetation map that is identified by an illegible Exhibit number. This map should be discarded. Figure 3.2-1 includes a list of vegetative types for the approved Barn Canyon facility. Volume 2 contains two additional vegetation maps. All maps pertaining to vegetation and wildlife should be located in the same corresponding sections of the MRP. 10
- R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275**, This section of the application needs to include a description of the wildlife the proposed habitat is designed for to accurately characterize the habitat restoration for the site. 16
- R645-301-742.324**, provide erosion control matting manufacturer literature including engineering specifications and installation instructions. 25

Page 4

C/007/038-AM01B

August 22, 2001

SUMMARY OF OUTSTANDING DEFICIENCIES

ENVIRONMENTAL RESOURCE INFORMATION

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Minimum Regulatory Requirements:

Provide a map that delineates existing vegetative types and a description of the plant communities within the area affected by surface operations and facilities and within any proposed reference area. The description shall include information adequate to predict the potential for reestablishing vegetation. The map or aerial photograph is required, sufficient adjacent areas shall be included to allow evaluation of vegetation as important habitat for fish and wildlife for those species of fish and wildlife as identified under the fish and wildlife resource information.

Analysis:

Vegetation resource information has not been included in this application, which pertains mainly to the reclamation of the Willow Creek Mine site. The table of contents in Volume 1 of the approved mining and reclamation plan refers the reader to Volume 5. Volume 5 refers the reader to Volume 9, and Volume 9 refers the reviewer back to Volume 5. These circuitous references need clarification, such that the information needed to review AM01B is clearly obtainable. Some information in the application is referred to as "exhibits". This term is used interchangeably to include volumes, chapters, sections, and maps. The vegetation resource information is provided for in Volume 5, Exhibit 6 of the MRP. The data provided was collected during 1981, 1994, and 1995.

Findings:

Information in the application is not adequate to meet this section of the regulations. Prior to final approval, the applicant must supply the following in accordance with:

R645-301-320, The references in Volumes 5, and 9 need to be corrected. A clear and concise nomenclature that differentiates the different types of "*exhibits*" needs to be incorporated into the MRP.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Minimum Regulatory Reference:

ENVIRONMENTAL RESOURCE INFORMATION

The application shall include fish and wildlife resource information for the permit area and adjacent area. The scope and level of detail for such information shall be determined by the Division in consultation with State and Federal agencies with responsibilities for fish and wildlife and shall be sufficient to design the protection and enhancement plan required under the operation and reclamation plan.

Site-specific resource information necessary to address the respective species or habitats shall be required when the permit area or adjacent area is likely to include:

- (1) Listed or proposed endangered or threatened species of plants or animals or their critical habitats listed by the Secretary under the endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), or those species or habitats protected by similar State statutes;
- (2) Habitats of unusually high value for fish and wildlife such as important streams, wetlands, riparian areas, cliffs supporting raptors, areas offering special shelter or protection, migration routes, or reproduction and wintering areas; or
- (2) Other species or habitats identified through agency consultation as requiring special protection under State or Federal law.

Analysis:

The Fish and Wildlife Resource information is provided for in Volume 1, and Volume 5, Exhibit 6 of the mining and reclamation plan.

Wildlife maps include, what appears to be, a 1994 raptor survey in Exhibit 6. There is no legend that depicts the location, the mine, the status, or the type of nest. There is also a Regional Wildlife map that includes a 1999 raptor survey and a Biological Survey map. These maps are located in Volume 2. In addition, there is a 2000 raptor survey provided for in the 2000 annual report. All maps pertaining to wildlife in the MRP should be located in the same section of the MRP.

Findings:

Information in the application is adequate to meet the requirements of this section of the regulations.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Minimum Regulatory Requirements:

Provide adequate soil survey information on those portions of the permit area to be affected by surface operations or facilities consisting of a map delineating different soils, soil identification, soil description, and present and potential productivity of existing soils.

Where selected overburden materials are proposed as a supplement or substitute for topsoil, provide results of the analysis, trials and tests required. Results of physical and chemical analyses of overburden and topsoil must be provided to demonstrate that the resulting soil medium is equal to or more suitable for sustaining revegetation than the available topsoil, provided that trials and tests are certified by an approved laboratory. These data may be obtained from any one or a combination of the following sources: U.S. Department of Agriculture Soil Conservation Service published data based on established soil series; U.S. Department of Agriculture Soil Conservation Service Technical Guides; State agricultural agency, university, Tennessee Valley Authority, Bureau of Land Management or U.S. Department of Agriculture Forest Service published data based on soil series properties and behavior; or, results of physical and chemical analyses, field site trials, or greenhouse tests of the topsoil and overburden materials (soil series) from the permit area. If the permittee demonstrates through soil survey or other data that the

ENVIRONMENTAL RESOURCE INFORMATION

topsoil and unconsolidated material are insufficient and substitute materials will be used, only the substitute materials must be analyzed.

Analysis:

Soil resource information is provided in Section 3.1.2 of the MRP. The Permittee will test soil material in operation's pads for suitability and fertility parameters (Section 4.2.2.2) before utilizing them as substitute topsoil material.

Findings:

Information provided in the proposed amendment is considered adequate to meet the requirements of this section.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Minimum Regulatory Requirements:

The permit application must include as part of the Resource Information, the following maps, plans and cross sections:

Vegetation reference area maps

The location and boundaries of any proposed reference areas for determining the success of revegetation.

Cross sections, maps, and plans included in a permit application as required by this section shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional, land surveyor, with assistance from experts in related fields such as landscape architecture, and shall be updated periodically as required by the Division.

Analysis:

Vegetation Reference Area Maps

Exhibit 9-1 provides for the vegetation types and reference areas for this reclamation project. Exhibit 9-2 is a vegetation map for the Castle Gate mine and should be placed in that MRP or supportive documentation should be provided as to why it is included in the Willow Creek MRP. There is also an additional area revegetation map that is identified by an illegible Exhibit number. This map should be discarded. Figure 3.2-1 includes a list of vegetative types for the approved Barn Canyon facility. Volume 2 contains two additional vegetation maps. All maps pertaining to vegetation should be located in the same section of the MRP.

Wildlife Maps

Wildlife maps include what appears to be a 1994 raptor survey in exhibit 6. There is no

legend that depicts the location, mine, status, or type of nest. There is also a Regional Wildlife map that includes a 1999 raptor survey and a Biological Survey map. These maps are located in Volume 2. In addition, there is a 2000 raptor survey provided for in the 2000 annual report. All maps pertaining to wildlife in the MRP should be located in the same section of the MRP.

Findings:

Information in the application is not adequate to meet this section of the regulations. Prior to final approval, the applicant must supply the following in accordance with:

R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731, Exhibit 9-2 is a vegetation map for the Castle Gate mine and should be placed accordingly in that MRP or supportive documentation should be provided as to why it is included in the Willow Creek MRP. There is also an additional area revegetation map that is identified by an illegible Exhibit number. This map should be discarded. Figure 3.2-1 includes a list of vegetative types for the approved Barn Canyon facility. Volume 2 contains two additional vegetation maps. All maps pertaining to vegetation and wildlife should be located in the same corresponding sections of the MRP.

OPERATION PLAN

OPERATION PLAN

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Minimum Regulatory Requirements:

Protection and enhancement plan

Each application shall include a description of how, to the extent possible using the best technology currently available, the operator will minimize disturbances and adverse impacts on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, during the surface coal mining and reclamation operations and how enhancement of these resources will be achieved where practicable. This description shall apply, at a minimum, to species and habitats identified. The description shall include: protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, and the monitoring of surface water quality and quantity; and, enhancement measures that will be used during the reclamation and postmining phase of operation to develop aquatic and terrestrial habitat. Such measures may include restoration of streams and other wetlands, retention of ponds and impoundments, establishment of vegetation for wildlife food and cover, and the placement of perches and nest boxes. Where the plan does not include enhancement measures, a statement shall be given explaining why enhancement is not practicable.

Each operator shall, to the extent possible using the best technology currently available: ensure that electric powerlines and other transmission facilities used for, or incidental to, underground mining activities on the permit area are designed and constructed to minimize electrocution hazards to raptors, except where the Division determines that such requirements are unnecessary; locate and operate haul and access roads so as to avoid or minimize impacts on important fish and wildlife species or other species protected by State or Federal law; design fences, overland conveyors, and other potential barriers to permit passage for large mammals except where the Division determines that such requirements are unnecessary; and, fence, cover, or use other appropriate methods to exclude wildlife from ponds which contain hazardous concentrations of toxic-forming materials.

Endangered and threatened species

No underground mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary or which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The operator shall promptly report to the Division any State- or federally-listed endangered or threatened species within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with appropriate State and Federal fish and wildlife agencies and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

Bald and golden eagles

No underground mining activity shall be conducted in a manner which would result in the unlawful taking of a bald or golden eagle, its nest, or any of its eggs. The operator shall promptly report to the Division any golden or bald eagle nest within the permit area of which the operator becomes aware. Upon notification, the Division shall consult with the U.S. Fish and Wildlife Service and also, where appropriate, the State fish and wildlife agency and, after consultation, shall identify whether, and under what conditions, the operator may proceed.

Nothing in these regulatory requirements shall authorize the taking of an endangered or threatened species or a bald or golden eagle, its nest, or any of its eggs in violation of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq., or the Bald Eagle Protection Act, as amended, 16 U.S.C. 668 et seq.

Wetlands and habitats of unusually high value for fish and wildlife

The operator conducting underground mining activities shall avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Underground mining activities shall avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

Analysis:

Protection and Enhancement Plan

The Protection and Enhancement plan for the Willow Creek Mine includes protection measures to be employed during active mining operations. There are enhancement plans in Volume 1, Sections 4.3 and 5.3 that basically describe enhancement measures for the reclamation phase of mining. The Mine is currently in temporary cessation status.

Endangered and Threatened Species

Sections 3.2.3, 4.3.4.1 and 5.3.3.3 of the MRP describe the provisions for protection and reporting of any threatened, endangered, or sensitive species. The information according to the MRP *"is based on available baseline and other resource information."* The plan also states that *"In the event that TES occurrences are identified in the future or if new designations result in classification of existing species occurrences, appropriate provisions for protection and minimization of impacts to TES species will be developed and implemented"*. Consultation with Ms. Dianna Whittington of the U. S. Fish and Wildlife Service indicated that TES species lists are updated every six months. The permittee should provide an up-to-date evaluation using current TES information.

Bald and Golden Eagles

The Bald Eagle is not known for nesting in the area but may be seen during the winter months. According to the permittee's contacts with UDWR, the permit area provides minimum potential for wintering Bald Eagle roosts. The 2000 raptor survey indicates that the Golden Eagle nests surveyed were inactive. PMC has included in their MRP a Mitigation plan that could be implemented during the reclamation of the Willow Creek mine in the event the reclamation activities continue during nesting periods and birds are known to be using existing or new nests in the area.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

Critical Elk winter range is common to the majority of the Willow Creek Mine area. There are two perennial streams adjacent to the Mine facilities. The current MRP includes a protection plan for the areas associated with the elk winter range and the two perennial streams. The information is located in Section 4.3.3 of the mining and reclamation plan.

OPERATION PLAN

Findings:

Information in the application is not adequate to meet this section of the regulations. Prior to final approval the applicant must supply the following in accordance with:

R645-301-322, -301-333, -301-342, -301-358, an up-to-date evaluation using current TES information should be provided.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Minimum Regulatory Requirements:

Each application will contain a plan for protection of vegetation, fish, and wildlife resources throughout the life of the mine. The plan will provide a description of the measures taken to disturb the smallest practicable area at any one time and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion. This may include part or all of the plan for final revegetation as described in reclamation plan for revegetation.

For UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES a description of the anticipated impacts of subsidence on renewable resource lands and how such impact will be mitigated needs to be presented.

A description of how, to the extent possible, using the best technology currently available, the operator will minimize disturbances and adverse impacts. This description will include protective measures that will be used during the active mining phase of operation. Such measures may include the establishment of buffer zones, the selective location and special design of haul roads and powerlines, the monitoring of surface water quality and quantity, and through prompt establishment and maintenance of vegetation for interim stabilization of disturbed areas to minimize surface erosion.

Analysis:

Vegetation information is provided for in Volume 1 Section 3.2 and Volume 5 Exhibit 6. The data was collected in 1981, 1994, and 1995. The various vegetative communities are identified along with appropriate reference areas. They include Grass- Sage, Mixed Brush, Conifer, Pinion-Juniper, Riparian Bottom, and Disturbed. Vegetative mapping is also provided.

Findings:

Information in the application is adequate to meet this section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Minimum Regulatory Requirements:

Each application shall contain maps, plans, and cross sections which show the mining activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the

OPERATION PLAN

facility or feature was shown and described as an existing structure.

The following shall be shown for the proposed permit area:

Monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, as required during mining operations.

Certification Requirements

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Analysis:

Monitoring and Sample Location Maps

The maps provided for in the MRP identify the various components of vegetation and wildlife. In some instances, they are located in various sections of the MRP as noted in the Environmental Resource section of this review.

Findings:

Information in the application is adequate to meet this section of the regulations. It is suggested that the permittee take the necessary measures to place all maps that identify wildlife and vegetation information in the same section of the MRP.

RECLAMATION PLAN

RECLAMATION PLAN

POSTMINING LAND USES

Regulatory Reference: 30 CFR 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Minimum Regulatory Requirements:

In general, all disturbed areas shall be restored in a timely manner to conditions that are capable of supporting: the uses they were capable of supporting before any mining; or higher or better uses.

Provide a detailed description of the proposed use, following reclamation, of the land to be affected within the proposed permit area by surface operations or facilities, including a discussion of the utility and capacity of the reclaimed land to support a variety of alternative uses, and the relationship of the proposed use to existing land-use policies and plans. This description shall explain: how the proposed postmining land use is to be achieved and the necessary support activities which may be needed to achieve the proposed land use; where a land use different from the premining land use is proposed, all materials needed for approval of the alternative use; and, the consideration given to making all of the proposed underground mining activities consistent with surface owner plans and applicable State and local land-use plans and programs.

The description shall be accompanied by a copy of the comments concerning the proposed use from the legal or equitable owner of record of the surface areas to be affected by surface operations or facilities within the proposed permit area and the State and local government agencies which would have to initiate, implement, approve, or authorize the proposed use of the land following reclamation.

Determine premining uses of land. The premining uses of land to which the postmining land use is compared shall be those uses which the land previously supported, if the land has not been previously mined and has been properly managed. The postmining land use for land that has been previously mined and not reclaimed shall be judged on the basis of the land use that existed prior to any mining; Provided that, If the land cannot be reclaimed to the land use that existed prior to any mining because of the previously mined condition, the postmining land use shall be judged on the basis of the highest and best use that can be achieved which is compatible with surrounding areas and does not require the disturbance of areas previously unaffected by mining.

Criteria for alternative postmining land uses. Higher or better uses may be approved as alternative postmining land uses after consultation with the landowner or the land management agency having jurisdiction over the lands, if the proposed uses meet the following criteria: there is a reasonable likelihood for achievement of the use; the use does not present any actual or probable hazard to public health and safety, or threat of water diminution or pollution; and , the use will not be impractical or unreasonable, inconsistent with applicable land use policies or plans, involve unreasonable delay in implementation, or cause or contribute to violation of Federal, State, or local law.

Approval of an alternative postmining land use, may be met by requesting approval through the permit revision procedures rather than requesting such approval in the original permit application. The original permit application, however, must demonstrate that the land will be returned to its premining land use capability. An application for a permit revision of this type must be submitted in accordance with the requirements of filing for a Significant Permit Revision and shall constitute a significant alteration from the mining operations contemplated by the original permit, and shall be subject to the requirements for permits, permit processing, and administrative and judicial of decisions on permits under the regulatory program.

Surface coal mining operations may be conducted under a variance from the requirement to restore disturbed areas to their approximate original contour, if the following requirements are satisfied:

- 1.) The Division grants a variance from approximate original contour restoration requirements.
- 2.) The alternative postmining land use requirements are met.
- 3.) All applicable requirements of the act and the regulatory program, other than the requirement to restore disturbed areas to their approximate original contour, are met.
- 4.) After consultation with the appropriate land use planning agencies, if any, the potential use is shown to constitute an equal or better economic or public use.
- 5.) The proposed use is designed and certified by a qualified registered professional engineer in conformance with professional standards established to assure the stability, drainage, and configuration necessary for the intended use of the site.
- 6.) After approval, where required, of the appropriate State environmental agencies, the watershed of the permit and adjacent areas is shown to be improved.

RECLAMATION PLAN

- 7.) The highwall is completely backfilled with spoil material, in a manner which results in a static factor of safety of at least 1.3, using standard geotechnical analysis.
- 8.) Only the amount of spoil as is necessary to achieve the postmining land use, ensure the stability of spoil retained on the bench, and all spoil not retained on the bench shall be placed in accordance with all other applicable regulatory requirements.
- 9.) The surface landowner of the permit area has knowingly requested, in writing, that a variance be granted, so as to render the land after reclamation, suitable for an industrial, commercial, residential, or public use (including recreational facilities.)
- 10.) Federal, State, and local government agencies with an interest in the proposed land use have an adequate period in which to review and comment on the proposed use.

Analysis:

The approved post-mining land use is *wildlife habitat*, as referred to in Section 5.3 of the MRP. The text in this section indicates that, "*PMC will reclaim the surface disturbance areas to a post mining land use of wildlife habitat*". A description of the species of wildlife that the proposed habitat is designed for should be provided such that this habitat design is accurately characterized in the restoration of the site.

Findings:

Information in the application is not adequate to meet this section of the regulations. Prior to final approval the applicant must supply the following in accordance with:

R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275, This section of the application needs to include a description of the wildlife the proposed habitat is designed for to accurately characterize the habitat restoration for the site.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR 817.97; R645-301-333, -301-342, -301-358.

Minimum Regulatory Requirements:

Where wetlands and habitats of unusually high value for fish and wildlife occur, the operator conducting underground mining activities shall provide a description of the measures taken to avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes. Designs and plans for underground mining activities shall include measures to avoid disturbances to, enhance where practicable, or restore habitats of unusually high value for fish and wildlife.

Where fish and wildlife habitat is to be a postmining land use, the plant species to be used on reclaimed areas shall be selected on the basis of the following criteria:

- 1.) Their proven nutritional value for fish or wildlife.
- 2.) Their use as cover for fish or wildlife.
- 3.) Their ability to support and enhance fish or wildlife habitat after the release of performance bonds. The selected plants shall be grouped and distributed in a manner which optimizes edge effect, cover, and other benefits to fish and wildlife.

Where cropland is to be the postmining land use, and where appropriate for wildlife- and crop-management practices, the operator shall intersperse the fields with trees, hedges, or fence rows throughout the harvested area to break up large blocks of monoculture and to diversify habitat types for birds and other animals.

RECLAMATION PLAN

Where residential, public service, or industrial uses are to be the postmining land use and where consistent with the approved postmining land use, the operator shall intersperse reclaimed lands with greenbelts utilizing species of grass, shrubs, and trees useful as food and cover for wildlife.

Analysis:

The Protection and Enhancement plan for the Willow Creek mine includes protection measures to be employed during active mining operations. There are enhancement plans in Volume 1, sections 4.3 and 5.3 that basically describe enhancement measures for the reclamation phase of mining. The mine is currently in temporary cessation status.

Findings:

Information in the application is adequate to meet this section of the regulations.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Minimum Regulatory Requirements:

General

Disturbed areas shall be backfilled and graded to: achieve the approximate original contour; eliminate all highwalls, spoil piles, and depressions; achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides; minimize erosion and water pollution both on and off the site; and, support the approved postmining land use.

The postmining slope may vary from the approximate original contour when approval is obtained from the Division for a variance from approximate original contour requirements, or when incomplete elimination of highwalls in previously mined areas is allowed under the regulatory requirements. Small depressions may be constructed if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation.

If it is determined by the Division that disturbance of the existing spoil or underground development waste would increase environmental harm or adversely affect the health and safety of the public, the Division may allow the existing spoil or underground development waste pile to remain in place. Accordingly, regrading of settled and revegetated fills to achieve approximate original contour at the conclusion of underground mining activities shall not be required if: the settled and revegetated fills are composed of spoil or nonacid- or nontoxic-forming underground development waste; the spoil or underground development waste is not located so as to be detrimental to the environment, to the health and safety of the public, or to the approved postmining land use; stability of the spoil or underground development waste must be demonstrated through standard geotechnical analysis to be consistent with backfilling and grading requirements for material on the solid bench (1.3 static safety factor) or excess spoil requirements for material not placed on a solid bench (1.5 static safety factor); and, the surface of the spoil or underground development waste shall be vegetated in accordance with the revegetation standards for success, and surface runoff shall be controlled in accordance with the regulatory requirements for diversions.

Spoil shall be returned to the mined-out surface area. Spoil and waste materials shall be compacted where advisable to ensure stability or to prevent leaching of toxic materials. Spoil may be placed on the area outside the mined-out surface area in nonsteep slope areas to restore the approximate original contour by blending the spoil into the surrounding terrain if the following requirements are met: all vegetative and organic materials shall be removed from the area; the topsoil on the area shall be removed, segregated, stored, and redistributed in accordance with regulatory requirements; the spoil shall be backfilled and graded on the area in accordance with the general requirements for backfilling and grading.

Disposal of coal processing waste and underground development waste in the mined-out surface area shall be in accordance with the requirements for the disposal of spoil and waste materials except that a long-term static safety factor of 1.3 shall be achieved.

RECLAMATION PLAN

Exposed coal seams, acid- and toxic-forming materials, and combustible materials exposed, used, or produced during mining shall be adequately covered with nontoxic and noncombustible materials, or treated, to control the impact on surface and ground water, to prevent sustained combustion, and to minimize adverse effects on plant growth and the approved postmining land use.

Cut-and-fill terraces may be allowed by the Division where: needed to conserve soil moisture, ensure stability, and control erosion on final-graded slopes, if the terraces are compatible with the approved postmining land use; or, specialized grading, foundation conditions, or roads are required for the approved postmining land use, in which case the final grading may include a terrace of adequate width to ensure the safety, stability, and erosion control necessary to implement the postmining land-use plan.

Preparation of final-graded surfaces shall be conducted in a manner that minimizes erosion and provides a surface for replacement of topsoil that will minimize slippage.

Analysis:

General

The Willow Creek Mine has a total of 55.57 acres of disturbance (Section 3.1.2.4). Section 5.4, RECLAMATION OF MINING DISTURBANCE, describes the backfilling and grading plans for the Willow Creek Facilities area. On pages 5.4-12 through 5.4-18 of Section 5.4.2.2 Reclamation Plan, it is noted that approximately 407,507 cubic yards of material will be moved at the main mine facilities area and 3,862 cubic yards of material will be moved at Barn Canyon during grading and topsoil application. Table 5.4.1 and 5.4.2 illustrate the cut and fill quantities.

As noted in Section 3.1.2.4, less than four feet of cover has been demonstrated to be adequate over coal waste, but the Permittee is striving during operations to stockpile all suitable soil to achieve the deepest cover possible. The final topsoil depth over coal waste will depend upon the amount of topsoil and substitute topsoil that Plateau Mining Corporation has salvaged. At present, the replacement topsoil depths for the Willow Creek Facilities reclamation are listed in Section 5.2 on page 5.2.2 and are based upon the existing soil stockpile volumes (as of February 2001):

- | | |
|--|------------------------|
| • Willow Creek Surface Facilities Area | 17.7 inches |
| • Willow Creek Prep. Plant and Loadout Areas | existing pad materials |
| • Schoolhouse Canyon Refuse Pile | 27 inches |
| • Crandall Canyon Area | variable |
| • Barn Canyon | variable |
| • Clean Coal Storage Area and Pond 011 Expansion | 20 inches |

The Division calculated twelve inches as the final topsoil or substitute topsoil depth in Crandall Canyon (see technical deficiency review of the Crandall Canyon Reclamation Plan Exhibit 20, SR01A). These twelve inches of cover will come from the soils in the pad and not from stockpiled topsoil. After reclamation is complete at Crandall Canyon, Section 5.2 on page 5.2.2 should be updated to reflect the actual depth of soil replaced rather than "variable" depth.

The Barn Canyon disturbance of 0.46 acres was expected to generate 906 cubic yards of topsoil to be replaced at Barn Canyon and 1,646 cubic yards of subsoil for use elsewhere at the mine site (AM98G). However, this construction activity was never undertaken. The Soil

RECLAMATION PLAN

Recovery and Storage Plans Table 4.2-1 will be updated with salvage information after Barn Canyon is developed. An update to Section 5.2 on page 5.2.2 is requested at that time.

Graded areas will be left rough (Backfilling and Grading to Establish Final Configuration page 5.4-16) and will be ripped prior to soil replacement (Soil/Substitute Replacement page 5.4-17).

Findings:

Information received in the amendment is considered adequate for the purposes of this regulation.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR 817.22; R645-301-240.

Minimum Regulatory Requirements:

Redistribution

Topsoil materials shall be redistributed in a manner that: achieves an approximately uniform, stable thickness consistent with the approved postmining land use, contours, and surface-water drainage systems; prevents excess compaction of the materials; and, protects the materials from wind and water erosion before and after seeding and planting.

Before redistribution of the material, the regarded land shall be treated if necessary to reduce potential slippage of the redistribution material and to promote root penetration. If no harm will be caused to the redistributed material and reestablished vegetation, such treatment may be conducted after such material is replaced.

The Division may choose not to require the redistribution of topsoil or topsoil substitutes on the approved postmining embankments of permanent impoundments or of roads if it determines that placement of topsoil or topsoil substitutes on such embankments is inconsistent with the requirement to use the best technology currently available to prevent sedimentation, and, such embankments will be otherwise stabilized.

Nutrients and soil amendments shall be applied to the initially redistributed material when necessary to establish the vegetative cover.

The Division may require that the B horizon, C horizon, or other underlying strata, or portions thereof, removed and segregated, stockpiled, be redistributed as subsoil in accordance with the requirements of the above if it finds that such subsoil layers are necessary to comply with the revegetation requirements.

Analysis:

Redistribution

Section 5.2, SOIL REPLACEMENT PLANS, describes the soil reclamation plans for the Willow Creek Facilities area.

Details for soil replacement plans for Willow Creek Facilities Area are found in Section 5.4.2, RECLAMATION PLANS AND PRACTICES. Other locations within the MRP for soil replacement details include the Castle Gate Prep Plant, Loadout, and Schoolhouse Canyon Refuse pile – Exhibit 19, Castle Gate MRP (Section 3.4); Crandall Canyon – Exhibit 20,

RECLAMATION PLAN

Crandall Canyon MRP (Section 3.7-5(5)); and Section 3.1.2.4 SOIL AVAILABILITY AND SUITABILITY.

This submittal removes the commitment to analyze topsoil for fertility after replacement (Sections 5.2.1.2 and 5.2.2.3). The Division is in agreement that testing of stockpiled topsoil material is redundant since the material was tested prior to stockpiling and should retain the qualities that made it desirable. Also, the Division recognizes that fertilizer applications have not been successful in improving productivity of native vegetation; therefore, the commitment made by the permittee to make additional applications of fertilizer to stockpiled topsoil has been removed from the plan.

This submittal also removes from Section 5.2.2.3 the commitment to add finely chopped hay from the current years crop to the deeply ripped subsoil. Apparently, this commitment was made in the MRP to promote the re-establishment of organic matter and microorganisms in the soil. However, mycorrhizae will invade with the wind and this particular step is not necessary since straw is being placed on the redistributed topsoil and over the seed (pages 5.2-3 and 5.2-4 and Section 5.2.2.4 SOIL STABILIZATION MEASURES). The previous Technical Analysis for the Willow Creek Mine requested that final soil reclamation efforts include restoration of the soil's living and structural integrity using best available technology to restore microbial activity, organic matter, and soil surface stabilization. This is still a worthy goal.

Following completion of final backfilling, grading, and drainage reestablishment for surface disturbance areas, stockpiled soil will be hauled and spread on the regraded surface. Soil stabilization and enhancement measures include establishment of effective drainages, leaving the soil surface in a roughened condition, deep-ripping of the regraded surfaces, and mulching subsequent to seeding with straw or native hay. Alternative Sediment Control Measures (ASCM's) will be selectively used. ASCM's include soil pitting, surface ripping, contour furrowing, and installation of silt fences and hay bales.

Certified noxious weed free hay (2 tons/acre) will be placed on the soil. The soil will then be gouged and seeded (pages 5.2-3 and 5.2-4). After seeding, 1 to 1.5 tons/acre of straw mulch will be applied to the surface. This will be followed by 0.25 tons/acre of tackifier (Section 5.2.2.4 SOIL STABILIZATION MEASURES).

Findings:

Information provided in the proposed amendment is adequate to meet the minimum reclamation topsoil and subsoil requirements of the Regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

RECLAMATION PLAN

Minimum Regulatory Requirements:

Hydrologic reclamation plan

The application shall include a plan, with maps and descriptions, indicating how the relevant regulatory requirements will be met. The plan shall be specific to the local hydrologic conditions. It shall contain the steps to be taken during mining and reclamation through bond release to minimize disturbance to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; and to meet applicable Federal and State water quality laws and regulations. The plan shall include the measures to be taken to: avoid acid or toxic drainage; prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow; provide water treatment facilities when needed; and control drainage. The plan shall specifically address any potential adverse hydrologic consequences identified in the PHC determination and shall include preventive and remedial measures.

Each application shall contain descriptions, including maps and cross sections, of stream channel diversions and other diversions to be constructed within the proposed permit area to achieve compliance with the performance standards for those structures.

Postmining rehabilitation of sedimentation ponds, diversions, impoundments, and treatment facilities

Before abandoning a permit area or seeking bond release, the operator shall ensure that all temporary structures are removed and reclaimed, and that all permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet the requirements of this Chapter for permanent structures, have been maintained properly and meet the requirements of the approved reclamation plan for permanent structures and impoundments. The operator shall renovate such structures if necessary to meet the requirements of this Chapter and to conform to the approved reclamation plan.

Analysis:

General

The amendment proposes to revise the reclamation plan from a phased plan, to a single-step plan. Originally, some sediment ponds, ditches, and roads were to be left in the initial stage, and reclaimed at a later time. This amendment calls for the reclamation of the entire site in one continuous operation. Otherwise, the reclamation section in the approved MRP (Mining and Reclamation Plan) remains the same. The amendment includes revisions to Sections 5.2, 5.3, 5.4, 5.5, Exhibit 13, Appendix H-1, Appendix H-4, and the bond estimate. The new proposal for the reclamation plan is simpler than the original plan.

The amendment has some typographical mistakes and inconsistencies that need correction. These include:

- 1) Pg. 5.4-2, "Removal and Reclamation of Sedimentation Ponds and Associated Structures" is crossed out. It's clear these actions will be taken during reclamation so this step needs to be included somewhere in the list.
- 2) Pg. 5.5-5 indicates, "Straw bale dikes will be installed in accordance with the recommendations of Barfield..." The current edition of Design Hydrology and Sedimentology for Small Catchments, by Barfield has only one reference to straw bales and there are no installation recommendations. However, the currently approved MRP has straw bale installation requirements in Figure 13-12, Silt Fence and Straw-Bale Dike Schematics. These are sufficient.
- 3) Pg. 5.4-8 indicates, "removal of buried foundations and utilities to at least 2 feet below the design reclaimed surface." Page 5.4-9 indicates, "Concrete slabs or foundations buried in-place will be covered with a minimum of four feet of fill..."

These conflicting commitments need to be resolved.

- 4) Pg. 5.5-2, paragraph four indicates the Willow Creek culvert is a "temporary structure" and "will be removed." Map 21C shows that culvert remaining as a permanent structure in the final reclamation. This conflict needs to be resolved.
- 5) Pg. 13-35, paragraph 2, indicates Table 13-11 has peak flows for the watershed drainages. The table does not include peak flows. Actually, those flows are given elsewhere and need not be referenced in the text at that point.
- 6) Pg. EX13-36 indicates WCRC-1 is a culvert under the railroad tracks. WCRC-4 is shown on Map 21 E as the only culvert under the railroad tracks. Please revise appropriately.
- 7) Table 13-14 has a footnote "2" in the seventh column. There are no footnotes for the table.

Ground-Water Monitoring

Ground-water monitoring requirements remain unchanged from that originally approved. See page EX 13-31.

Surface-Water Monitoring

Surface-water monitoring requirements remain unchanged from that originally approved. See page EX 13-31.

Diversions

Compared to the current MRP, the new diversions are noticeably shorter and have a more direct path from the drainage area to Willow Creek or the Price River. This arrangement is closer to the original ground configuration and should function more naturally. There is a significant change in the design event used for determining the channel size. The old plan used a 100-year, 6-hour storm and the amendment changes that to a 10-year, 6-hour event. As discussed in paragraphs 742.320 and 742.330 of the regulations, this lesser design event is appropriate. All the drainages resulting in reclamation diversions are defined as ephemeral streams. As such, the 10-year, 6-hour design event is appropriate.

The designs for the diversion channels with riprap lining were checked. The runoff curve numbers remained the same from the original MRP; the Manning numbers changed slightly. Riprap sizes D_{50} were checked and found to be appropriate for the channels. Where needed, rock filters were provided under the riprap. (Reference Appendix H-1, Reclamation Diversion Design).

Diversion channel profiles are generally configured to be concave up. WCRD-4 is a good example. This shape is the most stable and least erosive, and therefore, most desirable. The Permittee is requested, but not required, to change the stream profile of two of the streams since they are concave down. These are WCRD-3 and WCRD-10. The upper reach of WCRD-6A could also be made concave up as opposed to the straight profile shown now. Several

RECLAMATION PLAN

streams intersect, so this request may not be feasible. However, such changes would improve the erosion resistance of the reclaimed stream channels.

Typically culverts and roads are removed during reclamation. As shown on Maps 21C and 21E, five culverts will be left as part of the permanent reclamation. A dirt road will also be retained. The post-mining land use is wildlife and recreation. In addition, the site is a main thoroughfare for several utilities. The road and culverts will be retained in the reclamation for access to that utility corridor. The road and the culverts were there before Willow Creek Mine was opened, have been maintained during the operation phase of the mine, and will remain after reclamation. The culverts include the one crossing Willow Creek from the State highway, one under the railroad tracks, and those under the utilities access road.

Another significant change from the original MRP is the use of erosion control matting instead of rock riprap in 15 of the 23 reclamation diversion channels. Reference Table 13-13, page EX13-34, and Appendix H-1, starting on page 22. Appendix H-1 describes the erosion control mat as Tensar TM-3000 and commits to installation according to the manufacturers instructions. The matting is installed on top of the finished subgrade and then 3 inches of topsoil is placed on the matting. Then the channel is "revegetated as with the rest of the reclaimed area." Also described are two "Standard Swales" used to line the channels. Comparison of the swales is shown in the following table.

Swale No.	Maximum Flow Capacity	Bottom Width	Side Slope	Maximum Flow Depth	Minimum Freeboard
1	5 cfs	4 feet	5:1	0.5 foot	0.5 foot
2	3 cfs	2 feet	3:1	0.5 foot	0.5 foot

The use of erosion control matting is a relatively new reclamation technique. Those instances where it has been used in Utah for final reclamation were not successful and led to ongoing maintenance problems. There were, however, installation and design issues that probably contributed to those failures. As such, the Division is willing to allow the use of erosion matting only under controlled conditions. The amendment needs to provide indications, including manufacturer literature, that the proposed matting is being used under conditions for which it was designed. Examples include maximum water velocity, ultraviolet resistance, and soil burial depths. The manufacturer literature would be expected to include design parameters for product use and detailed installation instructions. These would be used for MRP review purposes and for field inspection during installation. The Permittee will need to submit such literature with the amendment. In the event the originally submitted product is not available at reclamation time, the new product would need to be re-submitted for Division approval. As always, the Permittee is responsible for reclamation success and must achieve that success before bond release. In the event of erosion matting failure, the Permittee would be required to repair the failure, possibly including riprapping of the channels.

A conversation with the Permittee regarding an erosion control matting named Pyramat,

resulted in the Division's review of that product's literature. It appears to have the limitation of insufficient ultraviolet resistance when installed as required in Utah where it takes more than one growing season to establish vegetation. Also, installation of Pyramat with 3 inches of soil would inhibit plant growth.

Stream Buffer Zones

No changes from the original MRP. The nature of site reclamation requires working in the stream channels and the Division approves those reclamation activities within the Buffer Zone.

Sediment Control Measures

As shown on Maps 22A and 22B, the new slope configurations are all concave up. This is the Best Technology Currently Available and is a shape that the Division has recently asked permittee's to use in their reclamation plans. This shape closely resembles natural slopes, and is the most stable. The concave up design results in minimum erosion in the area and provides the best long-term performance.

The permittee is requested, but not required, to alter the manner in which the reclaimed ground configuration meets the existing ground at the disturbed area boundary. As presently shown, the junction is an acute angle and a ridge is formed that's more easily eroded. If possible, the permittee is encouraged to make the intersection of the reclaimed area meet the existing ground at a more perpendicular angle. This would result in a rounded, and less erodable, configuration. This is at the following locations: 1) WCRD-11, where the contours intersecting stations 1+75 to 2+60 meet the existing ground adjacent to Willow Creek, 2) WCRD- 9A, where the contours intersecting stations 2+50 to 4+00 meet the ground adjacent to Willow Creek, and 3) WCRD-7, where the contours intersecting stations 3+50 to 4+40 meet the ground adjacent to Willow Creek.

Page 5.3-3 refers to using soil preparation methods other than deep gouging and roughening. The effectiveness of these "other" methods is unclear, based on a lack of Division documentation of field implementation of these other methods. Division experience at several mine sites has shown that gouging and roughening is one of the most effective and successful reclamation techniques ever utilized in Utah. While the permittee is ultimately responsible for reclamation success, the Division encourages the use of gouging and roughening to the maximum extent possible.

Page 5.4-5, indicates Maps 21A through 21E, and Map 21F, "show the drainage and sediment control features which will be retained during the reclamation liability period." None of those features have been shown on the maps. Page EX 13-13 enumerates those sediment control features as "silt fences, hay or straw bales, gravel, rock riprap, small sediment traps, and berms." The amended page EX13-29 commits to installing silt fences "between the reclamation areas and the Willow Creek buffer zone and/or channel." Those features need to be shown on the maps as indicated on page 5.4-5.

RECLAMATION PLAN

Pages 5.5-5 and EX 13-33 indicate, "Corrective action will be taken when a gully greater than 9 inches is created. This corrective action will consist of working the ground surface sufficiently to fill the adjacent gully, and reseeding and mulching if necessary to reestablish vegetation." While this will be adequate in many areas, it may not work in others. An example might include steeper sections of the reclaimed area. In the event the described method is inadequate, the Permittee will be required to take whatever action is needed to fix the gully and prevent its reoccurrence. This would include correcting the cause of the water concentrating to form the gully, stopping the "nickpoint" at the head of the gully, and, possibly, filling the gully with imported soil. In all cases, reseeding and mulching should be incorporated in the corrective action.

Sedimentation Ponds

The revised reclamation plan removes all four sediment ponds in a single phase of reclamation. The ponds will be filled and the area returned to Approximate Original Contour. Reference pages 5.4-7 and 5.4-2.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-121.200, 1) Correct the 7 typographical mistakes and inconsistencies detailed above, and 2) Show the drainage and sediment control features which will be retained during the reclamation period on Maps 21A thorough 21E.

R645-301-742.324, provide erosion control matting manufacturer literature including engineering specifications and installation instructions.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Minimum Regulatory Requirements:

General

Reclamation efforts, including but not limited to backfilling, grading, topsoil replacement, and revegetation, on all areas affected by surface impacts incident to an underground coal mine shall occur as contemporaneously as practicable with mining operations, except when such mining operations are conducted in accordance with a variance for concurrent surface and underground mining activities issued under Section 785.18 of this Chapter. The Division may establish schedules that define contemporaneous reclamation.

Variances for delay in contemporaneous reclamation requirement in combined surface and underground mining activities

This section shall apply to any person or persons conducting or intending to conduct combined surface and underground mining activities where a variance is requested from the contemporaneous reclamation requirements. Any person desiring a variance under this section shall file with the Division, complete applications for both the surface mining activities and underground mining activities which are to be combined. The reclamation and operation plans for these permits shall contain appropriate narratives, maps, and plans, which: show why the proposed underground mining activities are necessary or desirable to assure maximum practical recovery of the coal; show how multiple future disturbances of surface lands or waters will be avoided; identify the specific surface areas for which a variance is sought and the Sections of the Act, this Chapter, and the regulatory program from which a variance is being sought; show how the activities will comply with the requirements for protection of underground mining and other applicable requirements of the regulatory program; show why the variance sought is necessary for the implementation of the proposed underground mining activities; provide an assessment of the adverse environmental consequences and damages, if any, that will result if the reclamation of surface mining activities is delayed; and, show how offsite storage of spoil will be conducted to comply with the requirements of the Act, and the regulatory program.

A permit incorporating a variance under this section may be issued by the Division if it first finds, in writing, upon the basis of a complete application filed in accordance with this section, that: the applicant has presented, as part of the permit application, specific, feasible plans for the proposed underground mining activities; the proposed underground mining activities are necessary or desirable to assure maximum practical recovery of the mineral resource and will avoid multiple future disturbances of surface land or waters; the applicant has satisfactorily demonstrated that the applications for the surface mining activities and underground mining activities conform to the requirements of the regulatory program and that all other permits necessary for the underground mining activities have been issued by the appropriate authority; the surface area of surface mining activities proposed for the variance has been shown by the applicant to be necessary for implementing the proposed underground mining activities; no substantial adverse environmental damage, either onsite or offsite, will result from the delay in completion of reclamation otherwise required; the operations will, insofar as a variance is authorized, be conducted in compliance with the requirements of the regulatory program; comply with the provisions for offsite storage of spoil; liability under the performance bond required will be for the duration of the underground mining activities and until all requirements have been complied with; and, the permit for the surface mining activities contains specific conditions delineating the particular surface areas for which a variance is authorized, identifying the applicable regulatory provisions, and, providing a detailed schedule for compliance with the provisions of this section. Variances granted by permits issued under this section shall be reviewed by the Division no later than 3 years from the dates of issuance of the permit and any permit renewals.

Analysis:

General

This amendment is not relevant to any contemporaneous reclamation activities for the Willow Creek Mine.

Section 5.3 of the approved reclamation plan indicates that reclamation is scheduled during the first favorable planting season, (Fall), following the cessation of mining activities.

Findings:

RECLAMATION PLAN

Information in the approved MRP is adequate to meet this section of the regulations.

REVEGETATION

Regulatory Reference: 30 CFR 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Minimum Regulatory Requirements:

Revegetation: General requirements

The permittee shall establish on regraded areas and on all other disturbed areas except water areas and surface areas of roads that are approved as part of the postmining land use, a vegetative cover that is in accordance with the approved permit and reclamation plan and that is: diverse, effective, and permanent; comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division; at least equal in extent of cover to the natural vegetation of the area; and, capable of stabilizing the soil surface from erosion.

The reestablished plant species shall: be compatible with the approved postmining land use; have the same seasonal characteristics of growth as the original vegetation; be capable of self-regeneration and plant succession; be compatible with the plant and animal species of the area; and, meet the requirements of applicable State and Federal seed, poisonous and noxious plant, and introduced species laws or regulations.

The Division may grant exception to these requirements when the species are necessary to achieve a quick-growing, temporary, stabilizing cover, and measures to establish permanent vegetation are included in the approved permit and reclamation plan.

When the Division approves a cropland postmining land use, the Division may grant exceptions to the requirements related to the original and native species of the area. Areas identified as prime farmlands must also meet those specific requirements as specified under that section.

Revegetation: Timing

Disturbed areas shall be planted during the first normal period for favorable planting conditions after replacement of the plant-growth medium. The normal period for favorable planting is that planting time generally accepted locally for the type of plant materials selected.

Revegetation: Mulching and other soil stabilizing practices

Suitable mulch and other soil stabilizing practices shall be used on all areas that have been regraded and covered by topsoil or topsoil substitutes. The Division may waive this requirement if seasonal, soil, or slope factors result in a condition where mulch and other soil stabilizing practices are not necessary to control erosion and to promptly establish an effective vegetative cover.

Revegetation: Standards for success

Success of revegetation shall be judged on the effectiveness of the vegetation for the approved postmining land use, the extent of cover compared to the cover occurring in natural vegetation of the area, and the general requirements for Revegetation. Standards for success and statistically valid sampling techniques for measuring success shall be selected by the Division and included in an approved regulatory program.

Standards for success shall include criteria representative of unmined lands in the area being reclaimed to evaluate the appropriate vegetation parameters of ground cover, production, or stocking. Ground cover, production, or stocking shall be considered equal to the approved success standard when it is not less than 90 percent of the success standard. The sampling techniques for measuring success shall use a 90-percent statistical confidence interval (i.e., a one-sided test with a 0.10 alpha error).

RECLAMATION PLAN

Standards for success shall be applied in accordance with the approved postmining land use and, at a minimum, the following conditions:

- 1.) For areas developed for use as grazing land or pasture land, the ground cover and production of living plants on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.
- 2.) For areas developed for use as cropland, crop production on the revegetated area shall be at least equal to that of a reference area or such other success standards approved by the Division.
- 3.) For areas to be developed for fish and wildlife habitat, recreation, shelter belts, or forest products, success of vegetation shall be determined on the basis of tree and shrub stocking and vegetative ground cover. Such parameters are described as follows: minimum stocking and planting arrangements shall be specified by the Division on the basis of local and regional conditions and after consultation with and approval by the State agencies responsible for the administration of forestry and wildlife programs. Consultation and approval may occur on either a programwide or a permit-specific basis; trees and shrubs that will be used in determining the success of stocking and the adequacy of the plant arrangement shall have utility for the approved postmining land use. Trees and shrubs counted in determining such success shall be healthy and have been in place for not less than two growing seasons. At the time of bond release, at least 80 percent of the trees and shrubs used to determine such success shall have been in place for 60 percent of the applicable minimum period of responsibility; and, vegetative ground cover shall not be less than that required to achieve the approved postmining land use.

For areas to be developed for industrial, commercial, or residential use less than 2 years after regrading is completed, the vegetative ground cover shall not be less than that required to control erosion.

For areas previously disturbed by mining that were not reclaimed to the requirements of the performance standards and that are remined or otherwise redisturbed by surface coal mining operations, as a minimum, the vegetative ground cover shall be not less than the ground cover existing before redisturbance and shall be adequate to control erosion.

The period of extended responsibility for successful revegetation shall begin after the last year of augmented seeding, fertilizing, irrigation, or other work, excluding husbandry practices that are approved by the Division.

In areas of more than 26.0 inches of annual average precipitation, the period of responsibility shall continue for a period of not less than five full years. Vegetation parameters identified for grazing land or pasture land and cropland shall equal or exceed the approved success standard during the growing seasons of any two years of the responsibility period, except the first year. Areas approved for the other uses shall equal or exceed the applicable success standard during the growing season of the last year of the responsibility period.

In areas of 26.0 inches or less average annual precipitation, the period of responsibility shall continue for a period of not less than 10 full years. Vegetation parameters shall equal or exceed the approved success standard for at least the last 2 consecutive years of the responsibility period.

The Division may approve selective husbandry practices, excluding augmented seeding, fertilization, or irrigation, provided it obtains prior approval from the Director as a State Program Amendment that the practices are normal husbandry practices, without extending the period of responsibility for revegetation success and bond liability, if such practices can be expected to continue as part of the postmining land use or if discontinuance of the practices after the liability period expires will not reduce the probability of permanent revegetation success. Approved practices shall be normal husbandry practices within the region for unmined lands having land uses similar to the approved postmining land use of the disturbed area, including such practices as disease, pest, and vermin control; and any pruning, reseeding, and transplanting specifically necessitated by such actions.

Analysis:

General Requirements

Section 5.3 of the approved MRP addresses both general vegetative reestablishment and specific habitat enhancement measures for the reclamation at the Willow Creek mine. Revegetation practices will include seedbed preparation, seeding, woody species transplanting, mulching, and surface stabilization.

The general requirements that apply to revegetation and this proposal are found in Section 5.3 of the MRP. There are no proposed changes in AM01B to this section.

RECLAMATION PLAN

Timing

Section 5.5.2.4, Restoration of Natural Drainage Patterns, page 5.5-3, paragraph four, indicates that, "Soil replacement and reseeding will be scheduled to minimize the period of time during which the soil materials will be exposed without a protective vegetative cover." As part of AM01B, the permittee has submitted a revised reclamation timetable (See **FIGURE 5.4-2**, revised February 2001), which indicates that revegetation practices will be initiated four months after backfilling and grading is initiated. Backfilling and grading will take place during months six through twenty-two. Revegetation practices will be ongoing during months ten through twenty-four. The proposed reclamation timetable is an improvement over the currently approved timetable, (also referred to as **FIGURE 5.4-2** in the approved MRP) in that the approved timetable initiates revegetation practices five months after the initiation of backfilling and grading, (*Backfilling and Grading to Establish the Final Design Configuration* occurs during months 12 through 18; *Revegetation* practices will be initiated during months 17 through 24).

Therefore, the proposed reclamation timetable is an improvement over the approved reclamation timetable in that revegetation practices are initiated a month ahead of the schedule which is currently approved. AM01B does not propose to change the commitment noted in the currently approved plan (Section 5.3.2.1, page 5.3-2) "**to seed immediately after soil placement**". The Division realizes that the permittee must have a sufficient amount of lag time between the initiation of backfilling and grading and the initiation of revegetation methods. Although the commitment "to seed immediately" is appreciated, in reality it is not usually achievable due to the fact that seeding cannot be performed in the same area that backfilling is ongoing.

Mulching and Other Soil Stabilizing Practices

The applicant has proposed to incorporate weed-free mulch at a rate of 2 tons per acre. The mulch will be incorporated after the placement of growth media and prior to seeding. Additionally, roughening techniques will be employed to a depth of 12 to 18 inches to reduce compaction and enhance water infiltration. After seeding, an additional 1.5 tons of weed-free straw will be broadcast by either mechanical or hand blown methods.

Standards for Success

The proposal suggests one minor change to the vegetation sampling. The sampling will occur during years four and eight instead of three and seven.

Findings:

Information in the application is adequate to meet this section of the regulations.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR 817.95; R645-301-244.

Minimum Regulatory Requirements:

All exposed surface areas shall be protected and stabilized to effectively control erosion and air pollution attendant to erosion. Rills and gullies which form in areas that have been regraded and topsoiled and which either disrupt the approved postmining land use or the reestablishment of the vegetative cover, or, cause or contribute to a violation of water quality standards for receiving streams, shall be filled, regraded, or otherwise stabilized; topsoil shall be replaced; and the areas shall be reseeded or replanted.

Analysis:

Certified noxious weed free hay (2 tons/acre) will be placed on the soil. The soil will then be gouged and seeded (pages 5.2-3 and 5.2-4). After seeding 1 to 1.5 tons/acre of straw mulch will be applied to the surface, followed by 0.25 tons/acre of tackifier (Section 5.2.2.4 SOIL STABILIZATION MEASURES).

The site will be inspected quarterly for "indications of significant erosion, siltation, surface instability, drainage problems, seeding failure, weed infestations, or other conditions which could adversely impact reclamation success" (Section 5.3.2.2).

Problems will be addressed in a timely manner consistent with practices described in Section 5.4.2.3, Post Reclamation Management and Monitoring. Within sixty days of identification of gullies that are nine inches in depth, the Permittee will stabilize the eroded area and control upslope drainage to limit flow volume and velocity. Supplemental grading, riprap, straw bales, sediment fences, erosion control netting, supplemental seeding, mulching or a combination of the above methods may be employed. Where gullies are identified which are greater than twelve inches in depth, the use of berms and contour furrows may be implemented in addition to the control strategies outlined above.

Findings:

Information received in the amendment meets the minimum requirements for stabilization of surface areas during reclamation as required by the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Minimum Regulatory Requirements:

Each application shall contain maps, plans, and cross sections which show the reclamation activities to be conducted, the lands to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations, if the facility or feature was shown and described as an existing structure.

RECLAMATION PLAN

The permit application must include as part of the reclamation plan information, the following maps, plans and cross sections:

Reclamation monitoring and sampling location maps

Elevations and locations of test borings and core samplings. Elevations and locations of monitoring stations used to gather data on water quality and quantity, subsidence, fish and wildlife, and air quality, if required, to demonstrate reclamation success.

Reclamation treatments maps

The location and boundaries of any proposed areas for reclamation treatments including but not limited to: location, extent and depth of materials used for resoiling; location, extent and types of treatments for revegetation including soil preparation, soil amendments, mulching, seeding, variations in seed mixtures, and other revegetation treatments. Each water diversion, collection, conveyance, treatment, storage and discharge facility to be used during reclamation. Each facility to be used to protect and enhance fish and wildlife related environmental values. other treatments or applications which are specifically designed or required as part of phased or final reclamation activity.

Certification Requirements.

Cross sections, maps, and plans required to show the design, location, elevation, or horizontal or vertical extent of the land surface or of a structure or facility used to conduct mining and reclamation operations shall be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, a professional geologist, or in any State which authorizes land surveyors to prepare and certify such cross sections, maps, and plans, a qualified, registered, professional land surveyor, with assistance from experts in related fields such as landscape architecture.

Each detailed design plan for an impounding structure that meets or exceeds the size or other criteria of the Mine Safety and Health Administration, 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified registered professional engineer with assistance from experts in related fields such as geology, land surveying, and landscape architecture; include any geotechnical investigation, design, and construction requirements for the structure; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Each detailed design plan for an impounding structure that does not meet the size or other criteria of 30 CFR Section 77.216(a) shall: be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, or in any State which authorizes land surveyors to prepare and certify such plans, a qualified, registered, professional land surveyor, except that all coal processing waste dams and embankments shall be certified by a qualified, registered, professional engineer; include any design and construction requirements for the structure, including any required geotechnical information; describe the operation and maintenance requirements for each structure; and, describe the timetable and plans to remove each structure, if appropriate.

Analysis:

Reclamation Monitoring and Sampling Location Maps

Proposal AM01B includes the commitment approved within the current mining and reclamation plan (See **Post-Reclamation Management and Monitoring**, pages 5.4-18 and 19) to quarterly monitor revegetation success, developing erosion problems, weed infestations, etc.

The approved mining and reclamation plan (See **Section 4.7.2.3, Water Monitoring Plan**) contains a commitment by Plateau Mining Corporation to "currently maintain,..... (and) continue, a comprehensive program to monitor surface and ground water quality **for the duration of the proposed mining, processing and reclamation operations.**" **"The monitoring network is shown on the Regional Hydrology and Monitoring Station Location Map, (Map 15).** The remainder of Section 4.7.2.3 (continued on page 4.7-12) discusses the type and location of water monitoring sites and other topics relative to same.

The current mining and reclamation plan does not include a post-reclamation vegetation

monitoring map. However, Section 5.3.2.2 Revegetation Practices, **Management and Revegetation Success Monitoring** (page 5.3-4 and 5) commits the permittee to conduct a comprehensive program with which to monitor the re-establishment of diverse vegetation throughout all of the reclaimed areas associated with the Willow Creek Mine site. All potential revegetation failures are discussed with a commitment by the permittee to address each in a timely manner. "A detailed discussion of the revegetation success monitoring program is provided in Section 5.3.2.6, Revegetation Success – Criteria and Evaluation Methods."

Reclamation Treatments Maps

The post mining reclamation treatment and watershed map is provided for in map #21F.

Findings:

Information in the application is adequate to meet this section of the regulations.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR 800; R645-301-800, et seq.

Minimum Regulatory Requirements:

Determination of bond amount

The amount of the bond required for each bonded area shall: be determined by the Division; depend upon the requirements of the approved permit and reclamation plan; reflect the probable difficulty of reclamation, giving consideration to such factors as topography, geology, hydrology, and revegetation potential; and, be based on, but not limited to, the estimated cost submitted by the permit applicant.

The amount of the bond shall be sufficient to assure the completion of the reclamation plan if the work has to be performed by the Division in the event of forfeiture, and in no case shall the total bond initially posted for the entire area under 1 permit be less than \$10,000.

An operator's financial responsibility for repairing material damage resulting from subsidence may be satisfied by the liability insurance policy required in this section.

Analysis:

Determination of Bond Amount

The Division reviewed the bond calculations for the Willow Creek Mine as part of processing amendment AM01B, which involved replacing the original proposed surface facilities maps with "as-built" drawings. The Division chose to review the reclamation cost estimate because the as-built drawings were significantly different than the originally proposed maps.

The permittee submitted a detailed reclamation cost estimate for the Willow Creek Mine. The Division reviewed the calculations and found that they were adequate.

The Division made a determination that the reclamation bond for the Willow Creek Mine

RECLAMATION PLAN

should be reduced from \$12,100,000 to \$7,866,000, based upon the following:

- More detailed earthwork calculations have been submitted.
- Concrete demolition costs were based on the *Caterpillar Handbook* and the *Blue Book* rental rates rather than *Means* unit costs. The Means unit costs for concrete demolition are based on labor-intensive demolition crews instead of crews using large equipment.
- Rather than shipping the debris to East Carbon Development Corporation (\$35/CY) for disposal, the permittee proposed to use City Services, who will dispose of the materials at a rate of \$4/CY.

A detailed reclamation cost estimate for the Willow Creek Mine is attached to this TA.

Findings:

The permittee has met the minimum regulatory requirements with respect to the bond calculations.

Page 32
C/007/038-AM01B
August 22, 2001

RECLAMATION PLAN

RULES INDEX

30 CFR

783.....	5
783.19.....	5
783.21.....	6
783.24.....	7
783.25.....	7
784.14.....	19
784.15.....	13
784.200.....	13
784.21.....	5, 9
784.23.....	11, 28
784.29.....	19
785.15.....	15
785.16.....	13
785.18.....	24, 25
800.....	30
817.100.....	24
817.102.....	15
817.107.....	15
817.111.....	25
817.113.....	25
817.114.....	25
817.116.....	25
817.133.....	13
817.200(c).....	6
817.22.....	17
817.22.....	6
817.41.....	19
817.42.....	19
817.43.....	19
817.45.....	19
817.49.....	19
817.56.....	19
817.57.....	19
817.95.....	28
817.97.....	9, 14
823.....	6

R645-

301-220.....	6
301-234.....	15
301-240.....	17
301-244.....	25, 28

301-320	5
301-322	5, 9
301-323	7, 28
301-330	11
301-331	11
301-332	11
301-333	9, 14
301-342	9, 14
301-352	24
301-353	25
301-354	25
301-355	25
301-356	25
301-358	9, 14
301-411	6, 7
301-412	13
301-413	13
301-414	13
301-512	11, 19, 28
301-513	19
301-514	19
301-515	19
301-521	7, 11, 28
301-532	19
301-533	19
301-537	15
301-542	11, 19, 28
301-552	15
301-553	15, 24
301-622	7
301-632	11, 28
301-722	7
301-723	19
301-724	19
301-725	19
301-726	19
301-728	19
301-729	19
301-731	7, 11, 19, 28
301-733	19
301-742	19
301-743	19
301-750	19
301-751	19
301-760	19

301-761	19
301-800	30
302-230	15
302-231	15
302-232	15
302-233	15
302-270	13
302-271	13
302-272	13
302-273	13
302-274	13
302-275	13
302-280	24, 25
302-281	24, 25
302-282	24, 25
302-283	24, 25
302-284	24, 25
302-323	11